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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/826,416	04/16/2004	Michael A. Pouchak	H0005553-1161.1133101	9859

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EXAMINER	
SUERETH, SARAH ELIZABETH	
ART UNIT	PAPER NUMBER
3749	

NOTIFICATION DATE	DELIVERY MODE
09/15/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/826,416	POUCHAK ET AL.	
	Examiner	Art Unit	
	SARAH SUERETH	3749	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 June 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7 and 24-38* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7 and 24-38* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 April 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. Receipt of applicant's amendment filed on 06/18/10 is acknowledged.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim(s) 1,2,4-7,24-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pouchak (6,536,678) in view of Christiansen (5452687) .

Pouchak discloses a multistage modulating boiler system performing the claimed method steps: receiving a signal indicating that a first stage of the boiler system should be activated (col. 10, lines 60-64); activating the first stage at a first firing rate (via signal 220); maintaining the first firing rate unless a predefined temperature condition occurs (see "emergency mode" 280); the firing rate is determined from an error signal related to the boiler fluid temperature deviation from a setpoint (col. 6, lines 10-13).

Pouchak discloses that the boiler system is a multistage modulating burner with a variable firing rate (col. 5, lines 26-30), but varying the firing rate so that the initial firing rate is lower than the normal firing rate is not explicitly taught.

Christiansen discloses a boiler control system where the initial firing rate (FR) is set by the user (col. 4, lines 4-33), and the initial firing rate continues for a set time period (P91). After the set time period, the firing rate is at a new firing rate (FRold).

Christiansen teaches increasing the firing rate after the initial rate is established (col. 4, lines 54-56).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Pouchak apparatus with the firing rates taught by Christiansen, in order to allow the user to customize the firing rates as desired (col. 4, lines 45-49).

Regarding claim 2, the predefined condition includes when the temperature of a circulating fluid in the boiler system drops below a predetermined level (col. 5, lines 22-23).

Regarding claims 4,5,25 and 35-37, the boiler system includes a modulating (col. 6, lines 10-13) boiler(Figure 1) for heating a circulating fluid, the boiler having a primary heat exchanger (14) and a bypass temperature sensor (26) for sensing a bypass temperature of the circulating fluid entering the primary heat exchanger; and the predefined condition includes a likelihood of condensation within the primary heat exchanger(col. 1, lines 44-50).

Regarding claims 6 and 26, the boiler system includes a secondary heat exchanger (16) associated with the primary heat exchanger and an inlet temperature sensor for sensing an inlet temperature of the circulating fluid entering the secondary heat exchanger; and the likelihood of condensation is predicted based upon sensing of the inlet temperature (col. 1, lines 44-50).

Regarding claims 7,29 and 31, when the firing rate is set as taught by Christiansen, the firing rates will be independent of each other.

Regarding claim 29, the limitation that the boiler system stops operation when continued operation would result in damage is taught by Pouchak (see "freeze protect mode" col. 9, lines 40-41).

Regarding claims 31,33, Pouchak teaches ceasing operation of the boiler stages when additional heat is not needed (col. 7 lines 10-66).

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pouchak (6,536,678) in view of Christiansen (5452687), further in view of Fukayama (4841918).

As discussed above, Pouchak discloses operating the boiler with a safety feature triggered by the water temperature, instead of by the rate of temperature change of the water.

Fukayama discloses a boiler including a water temperature sensor (25), a temperature changing rate limit switch (29) to the controller (30), where the controller changes the boiler operation to achieve the desired water temperature (col. 14, lines 33-36). Fukayama teaches that either the water temperature itself, or the maximum rate of change of the temperature could be used to control the boiler system (col. 14, lines 33-34).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Pouchak apparatus by using the rate of the water temperature as a safety feature, in order to use an equivalent measuring means (col. 14, lines 33-34).

Response to Arguments

3. Applicant's arguments filed 6/18/10 have been fully considered but they are not persuasive.

4. Applicant argues that the prior art does not teach the limitation of activating one firing rate if the stage is the first stage and another firing rate if the stage is a later stage. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

5. In this case, Christiansen provides a clear teaching of having an initial firing rate that varies from the subsequent firing rates.

6. Applicant also argued that the limitation of “during a period of time” was not explicitly addressed. In response, the examiner notes that given the teaching of activating a desired firing rate, it is inherent that the firing rate will continue for a “period of time”. The examiner notes that the claims do not require the period of time to be defined in any manner, or even to be predetermined; merely that the burners operate for a period of time.

7. Applicant also requested clarification as to how Pouchak changes operation due to predetermined conditions. Reviewing Figure 4, inputs of low gas pressure, water flow errors, etc. go to controller (102a), which provides instructions to either begin disabled mode (278) or emergency mode (280) when dangerous conditions occur to vary the stages (via 224). The examiner notes that Pouchak has a common inventor with the current invention.

8. Applicant also indicated having difficulty with the meaning of "boiler response interval". In response, the examiner suggests reading column 6, lines 1-17. This passage explains that this is a time period that elapses before the firing rate would be adjusted. This time period is so that the controller does not prematurely adjust the firing rate, leading to an overcorrection (see abstract).

9. Applicant also argued that Christiansen does not provide explicit motivation for the combination. However, Christiansen teaches that allowing the user to set the initial firing rate is important to optimize burner performance by allowing the user to use their experience/knowledge to determine the best firing rate at start up (col. 3, lines 65-67). Christensen teaches that a large gap between the desired firing rate and the initial rate is not desirable (col. 5 lines 5-15) because it increases the risk of thermal shock and wasted fuel (col. 2 lines 6-11).

10. Applicant argues Christiansen teaches away from the claimed invention because both increasing or decreasing the later firing rate is taught. However, this is a clear teaching that the firing rate should be varied to suit the boiler conditions, and that increasing or decreasing the firing rate is obvious to obtain optimal burner performance.

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sarah Suereth at (571) 272-9061 or supervisory patent examiner Steve McAllister at (571) 272-6785.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http//pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Sarah Suereth/
Examiner, Art Unit 3749

/Steven B. McAllister/
Supervisory Patent Examiner, Art Unit 3749